PROFILE TESTING FOR RIDE QUALITY

Under the QMP Ride special provision, the contractor is required to measure ride quality with an inertial profiler. All mainline paving with a posted speed limit of 45 mph or greater is tested to determine the International Roughness Index (IRI) for each wheel path. This measurement includes bridge approaches, bridge decks, intersections, railroad crossings, and pavement gaps. Locations such as high-speed connection ramps may also be defined as mainline pavement, if specified in the contract special provisions.

The contractor is required to use a profiler that is on the department's list of approved devices, and operated by a person who is certified under the department's highway technician certification program. A profiling device should be re-approved whenever changes or repairs are made to the device that may affect data collection or analysis, including repairs made to the profiler components or software. The contractor should provide the engineer with documentation related to recent calibration activities the contractor has performed with their profiler. Components to be calibrated include the height sensors, accelerometers, and distance measuring instruments. The engineer should verify that the profiler and operator are certified, and that the device has been properly calibrated. The engineer should also verify proper use of the profiler on the project (correct wheel path locations, etc.).

It is intended that the contractor wait until all of the mainline paving for a particular profile run is complete before measuring ride for acceptance. The department prefers acceptance testing of the ride quality to be performed in a single run from one end of the project to the other. The engineer and contractor should work together to establish the exact timing in order to avoid delaying opening.

If there is phased construction or other traffic control issues allowing public traffic onto portions of the roadway, the engineer may direct or allow the contractor to profile those portions of a project separately. When performing acceptance profiling on portions of a project rather than an entire run, be sure to collect the data for whole segments at a time, to allow for easy compilation of the data for the entire profile run.

It is highly recommended that the contractor perform process control testing of the ride periodically during construction to identify problems and ensure that the end result will be a smooth pavement. Process control testing is not required by the contract, nor is the contractor required to have a profiler on site during paving operations. However, the engineer can request ride information if there appears to be a ride-related problem during construction of the pavement, and the contractor should provide the ride information in a timely manner to ensure that corrections can be made to the construction operations. Most contractors will be reluctant to assume the risk of a substantial disincentive pay deduction for ride at the end of the project, and will want to measure ride frequently during construction to avoid that risk.

The ride QMP subdivides mainline pavement into 3 categories. Category I is for HMA pavements of 2 or more layers. Category II is for single layer HMA pavements and concrete pavements. Category III is for a list of mainline features that historically were excluded from ride quality specifications. The pay equations and specification limits vary with each category. Category I and II pay equations are based on a statistical analysis of IRI data from HMA and concrete paving projects. Category III features are difficult to construct without sacrificing ride quality and are therefore eligible for incentives but not subject to disincentives for ride quality. This incentive-only approach is designed to encourage contractors to put more effort into achieving smoothness where it is most difficult to achieve.

Ride quality disincentive will not be assessed on segments containing an upper layer of asphaltic mixture that the engineer directed to be placed in cold weather, as stated in the specifications. This should be determined on a segment-by-segment basis.

The engineer and contractor should carefully consider the cause of bumps or profile irregularities when analyzing the profile data. It is not always in the best interest of the department to require repairs when a bump is shown on the profile data. An example is a bump that may exist due to built-in camber for future creep of a new bridge deck. Although it may appear as a bump on the data output, grinding is not warranted nor desired in this instance.

After verifying the contractor's data, the department calculates pay adjustments using the department's MRS software. The contractor must submit the required ride quality information electronically using the MRS software available on the department's web site at:

http://www.atwoodsystems.com/mrs/